Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY◆FACILITIES DEPARTMENT NEWSLETTER

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1999

BEARS TRANSFER LINE—A NEW TOOL FOR NUCLEAR PHYSICS

In an example of a true team effort involving several Berkeley Lab divisions, the Facilities Department's Small Projects Group recently completed construction of a unique isotope transfer line for the Nuclear Science Division.

Constructed for the Berkeley Experiments with Accelerated Radioactive Species (BEARS) project, the new transfer line connects the Life Sciences Division's mini-cyclotron in Building 56 (the Biomedical Isotope Facility) with the 88-Inch Cyclotron, 300 meters away. According to NSD's Rick Norman, that makes it the world's longest recorded connection between two accelerators. The line will supply the 88-Inch Cyclotron with short-lived carbon-11 and oxygen-14 isotopes produced by the mini-cyclotron. The 88-Inch Cyclotron will accelerate the isotopes to produce radioactive ion beams.

Workers install final section of BEARS transfer line.

Accelerator experimentation in nuclear physics has heretofore focused almost exclusively on stable ion beams, and most of the possible combinations of beam and target have been explored. The BEARS project's activated beams will open up new areas of research into nuclear structure and nuclear astrophysics.

The transfer line is a slender, Teflon-and-polypropylene capillary tube. The carbon-11 and oxygen-14 will be mixed with a carrier gas and continuously transported to Building 88, making the trip in about 20 seconds. There, they will be separated out for ionization and acceleration as radioactive beams. Because the half-lives of carbon-11 and oxygen-14 are 20 minutes and 70 seconds, respectively, the speed of transfer was a major design consideration.

The transfer line is contained within a flexible 2-inch tube that, in turn, runs through a 6-inch diameter PVC pipe. This double-containment system provides security against leaks and facilitates leak monitoring. From its origin in Building 56, the line runs under Alvarez Street, then along Blackberry Canyon to Building 88. The terrain along the way is very difficult, with steep, varying slopes. According to Bill Wu, Facilities

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FACILITIES MOVES

In September, Facilities Department Manager Bob Camper and his staff, along with personnel from other selected Facilities groups, moved their offices to Building 69. The move will free up room in the Building 90 trailer complex for Earth Sciences and will help integrate the affected functions with Facilities Department operations in Buildings 69 and 76.

See page 6 for a list of the relocated groups and personnel.

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INSIDE

TRANSFER LINE

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project manager, sixty foundation supports were individually designed to accommodate the differences in slope. At one spot, a bridge was constructed across a small ravine.

Project design and construction required close cooperation between Facilities, NSD, Life Sciences, and EH&S, which provided monitoring devices and helped Facilities meet shielding requirements.

"We have never built anything like this," says Max Ostas of the Small Projects Group, who was the principal designer of the system. "In addition to the steepness and variability of the terrain, we had to address the thermal expansion of the pipeline. Boxes were situated every 100 feet to act as expansion joints."

Approximately 200 feet of the transfer line is shielded with concrete. Under Alvarez Road, closest to the point of origin, the concrete is 18 inches thick. Below the Blackberry Canyon steps, the line is buried under 10 inches of concrete, and about 30 feet of chain link fencing has been installed there to restrict access to the line. Signs also have been placed on the transfer line, fencing, and gates warning that the area is controlled for radiation protection. Since the isotopes are short-lived, radiation protection will only be necessary when the line is being operated.

Monitors have been installed both on the line and in the two buildings. Scintillator detectors, located in two expansion boxes, monitor both ends of the line. Vacuum monitors at both ends of the line are designed to detect a leak inside the 2-inch tube. EH&S has installed thermoluminescence dosimeter (TLD) monitors on the stairs to Blackberry Canyon and along the Lab's western fence boundary. A computer-based system connected to the detectors will provide an interlock to Building 56. If a failure is detected at any point in the system, the computer will shut down the transfer line.

Various scenarios have been evaluated to determine consequences if the transfer line were breached. These include earthquake, mudslide, or mechanical breach resulting from a backhoe or other heavy equipment. In all cases, the amount of radioactivity released into the environment would be small and would rapidly decay away. For on-site workers, radiation-dose consequences have been determined to be less than 5 percent of the DOE limit. No measurable off-site dose is expected from an accidental release.

Tests carried out in July measured transit time and amount of isotopes transferred. In addition, the interlocks and the monitoring system were checked. Production of carbon-11 isotopes and use of the transfer line began in August. The BEARS experiment is expected to last about two years. For more information on BEARS, go to the project website at cerny3.lbl.gov/BEARS/homepage.html.

FROM THE FACILITIES MANAGER...

With fiscal year 1999 closed and fiscal year 2000 starting, I would like to thank everyone in the department for closing the century (yes, I know it really doesn't end until next year), as far as government years go, at a high mark. In the past few years the department has grown and become more diverse in its operations. The reputation of the Berkeley Lab Facilities Department is among the best in DOE (I'm trying to be modest – I know it's the best). We have had visitors from DOE headquarters to study how OAK and the Laboratory have succeeded with LCAM where others have had problems. At the facilities managers' meeting in April, our peers acknowledged that our department was one of the top few. Property Management improved its Marginal evaluation to at least an Excellent this year. The other parts of Site Services continue to receive compliments for their improved customer service. The Technical Services, O&M, AE, and Inspection groups continue their close working relationship, allowing completion of projects on restricted budgets and schedules that would have been unworkable five years ago—and our safety record has improved along with our productivity. Planning continues to be the model for all DOE laboratories; and, in my opinion, should be considered as such in the UC organization. All of this is owed to each of you doing your job better than you did the year before.

There will be changes this next year. Field Management has been disbanded and its functions assigned to other parts of DOE. Martha Krebs, the Director of the Office of Science, has resigned, and someone new will be in that office until a new administration takes over in Washington in January 2001. How all of this will affect us is unknown, but I have no doubt that this department will continue its outstanding performance.

Here's wishing us all a productive New Fiscal Year.

Bob Camper

Work SMART...
WORK SAFELY...
If it is not safe, STOP the work.

AT YOUR SERVICE

FACILITIES DEPARTMENT

Facilities provides Berkeley Lab with a full range of architectural and engineering, construction, and maintenance services for new facilities and for modification and support of existing facilities.

Architectural and engineering services include facility planning, programming, design, engineering, project management, and construction management. Maintenance and construction functions include custodial, gardening, and lighting services; operation, service, and repair or replacement of equipment and utility systems; and construction of modifications, alterations, and additions to buildings, equipment, facilities, and utilities. Additional services include bus and fleet management, mail distribution, stores distribution, property management, property disposal, cafeteria operations, and electronics repair.

Ongoing Facilities activities include renewal and upgrade of site utility systems and building equipment; preparation of environmental planning studies; in-house energy management; space planning; and assurance of Laboratory compliance with appropriate facilities-related regulations and with University and DOE policies and procedures.

The Work Request Center expedites facility-related work requests, answers questions, and provides support for facility-related needs.

FOCUS ON SERVICE: Recycling

The next time you toss a food wrapper in the wastebasket, take a moment to examine the trash receptacle's exterior. If you see a large, blue, oval label, then you have properly placed those lunchtime remains in with the "NON-RECYCLABLE TRASH."

Non-recyclable waste label.

Recently added to "blue liner" waste baskets throughout the lab by recycling specialist Peter Schultze-Allen of Custodial, the new labels are designed to improve separation of Berkeley Lab's trash into recyclable and nonrecyclable types. The label lists nonrecyclable items and the EH&S Waste Minimization web page (www-ehs.lbl.gov/wastemin/index.html). Peter has also used the occasion to provide Lab employees with one-on-one waste minimization and pollution prevention training. If you have feedback or questions for Peter on waste minimization at the Lab, he can be contacted at x5129 or PSAllen@lbl.gov.

Shelley Worsham of EH&S, who is Berkeley Lab's Waste Minimization Specialist, sees the informational campaign as "an excellent opportunity for increasing the percentage of recyclables generated at Berkeley Lab." But, she adds, "In order to be truly effective, everyone must be on board."

Nonrecyclable trash includes food waste and wrappers, slick thermal fax paper, empty whiteout bottles, empty toner refill bottles, nonrecyclable plastics, broken glass (please seal it in a box), used paper towels and tissues, unusable pens, pencils, and markers, disposable containers, and noncontaminated rubber gloves.

The other waste containers found in office areas

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COMPLIMENTS

Ann Skirry of ASD praises the "excellent service" of Ron Woods and the Move Team in handling her move to Berkeley Tower (Bldg 937). They were, she writes, "instrumental in making this move as smooth and painless as possible."

"Instantaneous success!!" declares Gloria Acosta of ASD in describing the results of a call to Denise Iles in Transportation regarding a replacement computer monitor. "Delivery was confirmed in a most harmonious manner—Denise Iles is indeed right on!"

Don Krieger of Technical Services commends Richard Doty and his roofing crew for accomplishing their work with a minimum of inconvenience to the Building 25 technical staff and their operation. "Richard and his people were considerate and aware of our needs." Now, says Don, "I'm not worried about the coming winter, as the new roof looks great!"

Regarding Jaime Abenojar's work in upgrading the 70/70A LN storage tank, Building 70A Manager David Wilson writes, "Mr. Abenojar was primarily responsible for the very successful completion of that work. His attention to details, preplanning, and assembling of parts and equipment ahead of time allowed for a great deal of work to be completed during a short window of opportunity."

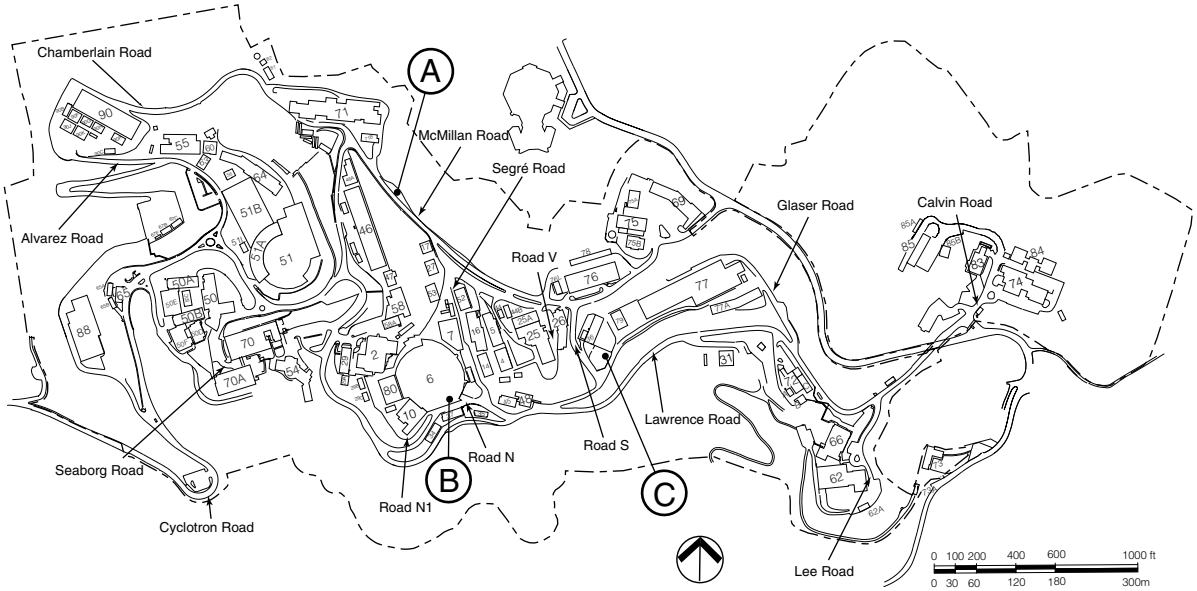
WORK REQUEST CENTER

Telephone	6274
Fax	7805
E-Mail	WRC@lbl.gov
Mailstop	76-222
Web	web3.lbl.gov/wrc

WRC welcomes questions or comments about Facilities Quarterly.

CONSTRUCTION AND YOU

Current construction projects affecting parking, or vehicular or pedestrian circulation



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

Blackberry Switching Station

(A)

OCT	NOV	DEC

The contractor will continue to occupy the laydown area on McMillan Road until early 2000. New 12-kV cables will be pulled into the underground duct system beneath McMillan Rd. beginning in early October. Lab employees can expect intermittent traffic delays on McMillan Rd. between Bldg. 76 and Bldg. 71 until November. (Chuck Taberski, x6076)

Bldg 6: 2nd Floor Office & Lab Buildout

(B)

OCT	NOV	DEC

Parking spaces along the south side of Bldg 6 will be reserved for contractor use. (Richard Stanton, x6221)

UC Hill Area Substation

JUL	AUG	SEP

(C)

UC Berkeley is constructing a new electrical substation at the corner of S Road and Glaser Road. Construction will be limited to the actual site of the substation itself, but Lab employees can expect slow-moving construction vehicles and occasional closures of Glaser Road while the contractor is installing underground duct banks and electrical-equipment supporting structures on the down-slope side of Glaser Road. Construction is scheduled to be completed in early 2000. (Chuck Taberski, x6076)

"CAUTION—CONSTRUCTION AREA"

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Bldg 7: Replacement

This new multiple-story building will contain offices and support space for ALS users. Conceptual design is in progress. (Richard Stanton, x6221)

Bldg 74: Rehabilitation of Building Systems

This project will upgrade Building 74 mechanical and electrical systems, provide seismic upgrade of the structure, and bring architectural features up to code. As part of the project, the Building 84 utility center will be expanded to accommodate Building 74 utilities, including relocated mechanical equipment and new electrical switchgear. This project is under consideration for FY 2001 funding. (Richard Stanton, x6221)

Operations Building

Conceptual design is underway for a multiple-use building for Operations. The new structure is planned at approximately 2300 sq m (25,000 sq ft). (Richard Stanton, x6221)

Sitewide Water Distribution Upgrade, Phase 1

Much of Berkeley Lab's fresh-water supply system has been in place for over 30 years. This project will replace about 0.9 mile (1.5 km) of cast iron pipe and upgrade the remaining 5 miles (8 km) of pipe with corrosion protection, new valves, pressure reducing stations, improvements to an existing water storage tank, and a new water storage tank in the East Canyon area. Facilities has prepared an updated conceptual design report for FY 2001 funding consideration. (Charles Allen, x6438)

IN PROGRESS

Blackberry Canyon Switching Station Replacement

The project has been awarded to Contra Costa Electric and will begin construction in early July 1999. Until September 1999, most of the construction will be limited to the new switching station structure located behind Building 51. The impact upon Lab parking and traffic will be minimal until that time. In early September, the contractor will begin the slow process of installing the 12-kV feeders. During this phase of construction, manholes in the street will be opened and flaggers will direct traffic into single lanes at various times. No roads will be closed. Contract completion is scheduled for the early spring of 2000. (Chuck Taberski, x6076)

Bldg 6: Laboratory and Office Buildout

This project will build out approximately 1,100 sq m (12,000 sq ft) of laboratory, office, and research support space in the existing unfinished area on the second floor of Building 6. (Richard Stanton, x6221)

Bldg 62: Third-Floor Alterations and Moves

Modifications to the third floor of Building 62 are underway to convert the space for use by the Engineering Division. (Richard Stanton, x6221)

Bldg 64: High Bay Space Conversion

A portion of the Building 64 high bay and of Building 51 (approximately 850 sq m or 9000 sq ft) will be renovated and upgraded to accommodate offices, dry laboratories, an assembly area, a machine shop for light machining, and a storage area. The project also includes demolition and removal of miscellaneous electrical equipment and outdated scientific equipment. (Richard Stanton, x6221)

Bldg 77: Rehabilitation of Building Structure & Systems

The Architect/Engineers are completing final design. This project will arrest differential settlement of Building 77, replace building cross bracing, and realign bridge crane runways. Upgrades to the building HVAC system and addition of thermal insulation will improve temperature controls, supporting the building's precision-engineering mission. Other improvements will include new sound baffles and building architectural and electrical system upgrades. (Lonny Simonian, x6088)

JGI Production Sequencing Facility

Construction of the tenant improvements for this fast-track project is complete. User outfitting with lab benches, equipment hookups, etc., has begun and is scheduled for completion in April 2000. (Kirk Haley, x5973)

Berkeley Lab Offsite Computing Center

Design and construction are underway for 1,000 sq m (11,000 sq ft) of computer space including control, network, and conference space—and 400 sq m (4,000 sq ft) of office space. The new facility will be located at 415 20th St. in downtown Oakland. (Dave Tudor, x4171)

WOW FORUM

On July 22, the Facilities Department's behavior-based safety program, Workers Observing Workers (WOW), held its annual safety forum in Perseverance Hall. This year's theme was "Partnerships in Safety."

About 100 people attended this year's event, including most of the 45 volunteer coaches, steering committee members, representatives from EH&S, Facilities Department head Bob Camper, Deputy Director Klaus Berkner, and a group of sheet metal workers from Pacific Northwest Laboratory (PNL) who are interested in learning from Facilities' implementation of behavior-based safety.

The annual open house is held to acknowledge the contributions of the coaches, who have been key to the program's success, and to put its methods and accomplishments on view for Laboratory management.

One measure of the WOW program's success is its net savings for Berkeley Lab: $600,000 in just over half a year in worker's comp costs. For the WOW coaches, though, the big payoff is seeing their co-workers go home healthy at the end of the day.

For more information on the WOW program, see the January 1999 issue of Facilities Quarterly online at www.lbl.gov/Workplace/Facilities, or call Bill Birbeck at x2914.

FACILITIES MOVES

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The following Facilities Department personnel have moved to Building 69. Their new office numbers are given in parentheses. Their new mail stop is 69-200.

Facilities Management:
Bob Camper—Facilities Manager (211)
Ka Rynn Kelly (200)
Emmy Randol—Controller (209)

EH&S Coordinator:
Bill Birbeck (203)

Site Services:
Bill Llewellyn—Group Leader (205)

Facilities MIS:
John Pon—Group Leader (235)
Marjorie Allen (225)
Pankaj Bhide (223)
Mike Hollister (115)
Chinh Huynh (117)
John Lee (238)
Allison Mills (240)
Ray Moats (117)
Vickie Ng (241)
Ellen Wei (239)
Frank Yee (237)

PA/Security:
Bob Ngim (130)

Construction Management:
Sam Birky (109)
Fred Mecum (111)
Tipasa Samatua (116)
Bela Torkos (113)
Steve Waters (107)

Recycling

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are for recycling white and mixed paper. These are usually labeled with "stop" signs that identify them as either mixed or white paper containers. Wastebaskets with no label should be used for mixed paper.

Recyclable white paper includes standard laser printer and copy paper, notebook paper, computer paper, non-slick fax paper, plotter paper, and *Currents*. Small desktop recycling boxes are available for white waste paper. When your desktop box is full, empty it into one of the centrally located green tubs. Mixed paper includes newspaper, magazines, catalogs, colored paper, small boxes, file folders, bags, hardcover books, catalogs, and phone books.

Other common office recyclables include steel, tin, and aluminum cans, certain plastic and glass beverage bottles, Tyvek envelopes (high-density polyethylene fabric bags, such as the noncardboard FedEx envelopes), "peanut" styrofoam pellet packing material, bubble wrap, transparencies, toner cartridges, and large cardboard boxes. Yellow plastic barrels are for cans and beverage bottles. Remove bottle caps before recycling, and, for the safety of the custodians, put broken glass in a sealed box. Empty all containers before disposal. Flatten cardboard boxes and leave them for the custodians . Before discarding boxes, please dispose of "peanut" packing material in one of the gray plastic barrels found around the Lab.

One of the most preventable contributors to Berkeley Lab's waste stream is the office move. Surplus computers, equipment, and office supplies should be sent to Excess Property. For information, call Chris Butler or Paul Stagnaro at x4587. To arrange for pickup by Transportation, contact the Work Request Center (see page 3).

Shelley Worsham has some other tips to help with recycling. Pack used toner cartridges in the original box and send them to Building 69 (Shipping) for recycling. To cut down junk mail, use the yellow cards available at mail stops and the mail room to get taken off mailing lists.

For more information on waste minimization, consult the EH&S Waste Minimization website. To request recycling containers or labels, ask your custodian or contact the Work Request Center.

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